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Index to Contents, Page 4

Advertising Index, Page 33

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American Gas Journal

SIXTY FIFTH YEAR

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Contents of This Issue

More Analyses—By R. H. Burdick **149**
Good Will Advertising—By J. W. Green **153**
Utilities May Not Capitalize Their Profits **154**
Gas in Baking Industry—By J. A. Sutton **155**
Efficient Purchasing **156**
Utility Bonds Safe for Savings Banks **157**
Industrial Gas in Lime—By H. H. Addensell **158**
As the Journal Views It **159**
Public Utility Securities
House Heating by Gas
Service **160**
News of tne Gas Industry **163**

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More Analysis

By R. H. Burdick

IN continuance of the general analytical principles set forth in an article entitled "Analysis" which appeared in the March 17, 1923, issue of the Journal, there is given below a brief dissection of the business of a gas company situated in rather favorable present circumstances, together with certain estimates of future growth which were prepared by the company's management as indicative of what the security holders might anticipate in the way of future revenues.

At the outset of these comments, it may be stated that neither the past performances nor future forecasts, as originally prepared, were subject to any detailed analysis and in consequence certain fundamental weaknesses of the company's business were overlooked. In several of the tabulations included herewith, the beneficial results of correcting these flaws is illustrated and, in the comparative estimates of future earnings, most markedly reflected.

A. THE COMPANY'S TERRITORY

The public service company under discussion operates both gas and electric utilities in a territory having a rather prodigal population, most of whom are good patrons by virtue of the reasonable rates in effect and the excellent character of service rendered by the company. Gas is served in the city wherein the plant is located, and which has a fixed population of approximately 75,000 and numerous close-knit suburbs with an aggreate of about 9,000 people. There is also a floating summer population of some 15,000 or 20,000, which tends to swell the company's business in the normal slack season but which, for purposes of physical analysis (except as far as actual gas sales are concerned), is ignored.

Carcuretted water gas is manufactured in a fairly modern and well administered plant and distribution is had through both high pressure and low pressure mains, the net work of which covers the territory well. Practically every house, shop, store and building in the territory supplied is piped for gas and the tenants thereof use gas for all or the greater part of each year. The majority of appliances consuming gas are of the standard domestic variety, i. e., ranges, waterheaters and space heaters, the balance being made up of gas engines (25), hotel ranges (15), laundry stoves (302), tailor stoves (37), candy furnaces (9), and miscellaneous industrial devices to the extent of 150 or more. The Company rents and maintains gas arc lamps for both public and private lighting, the gas consumption of which represents 3% of the total gas sales annually.

Building of residences with the usual attendant quota of stores, restaurants and small manufacturies has progressed at a fairly uniform rate and bids fair to continue to do so for several future years. As will be noted in Table No. 1, except for the year 1919, during which the soldier population returned to take up residence, the increase in population from year to year has been around 8%.

B. PHYSICAL ANALYSIS AND ESTIMATES

Table No. 1 sets forth in short historical form (covering years 1918 to 1922 inclusive) the changes in population, the gas sales, number of consumers and miles of mains in service together with the Company's estimates of the same data for the four years 1923 to 1926 inclusive. With these data are given simple analyses based on the convenient units of "Per Consumer," "Per Capita" and "Per Mile of Main."

For the purposes of this article, it may be assumed that the forecasts of population growth as given in Table No. 1 are conservative and that the additional main mileage estimated for the future will be required to serve the expanding districts of the city and its suburbs.

It is a curious fact, but none the less interesting, that in situations where gas main extensions are conservatively made to keep pace with the growth of residence building, the number of "consumers per mile of main" remains practically constant for any fixed policy of new business development. Where lax new business methods are employed the "consumers per mile of main" will remain low, though relatively constant. With energetic campaigning and continual aggressive commercial development the "consumers per mile of main" can be held at a much higher point. The actual maximum obtainable number of consumers per mile of main depends of course upon the geographic characteristics of a given community. In well developed gas territories, a town cut up by parks, canyons, or with scattered dwellings and buildings, a ratio of 50 consumers per mile may be good while in a compact, close built city 110 to 125 customers per mile may be easily obtainable.

TABLE NO. 1.
Physical Analysis and Estimates
By Years

ITEM.	1918 Actual	1919 Actual	1920 Actual	1921 Actual	1922 Actual	1923 Est'm'd	1924 Est'm'd	1925 Est'm'd	1926 Est'm'd
Basic Data									
Population	54,000	62,500	66,000	71,900	77,750	84,000	90,550	96,700	103,400
Increase over last year	.....	16%	6%	9%	8%	8%	8%	7%	7%
Consumers	4,720	5,340	6,150	7,080	8,230	9,450	10,750	12,280	14,000
Increase over last year	.....	13%	15%	15%	16%	15%	14%	14%	14%
MCF Gas Sales	169,800	205,800	243,600	293,100	337,000	392,500	456,600	521,900	595,000
Increase over last year	.....	21%	19%	20%	15%	16%	16%	15%	15%
Miles of Gas Mains	102	120	131	149	170	197	220	251	280
Increase over last year	...	18%	9%	13%	14%	16%	12%	14%	12%
Per Consumer									
Population	11.4	11.7	10.7	10.2	9.5	8.9	8.4	7.9	7.4
MCF Gas Sales	36.0	38.5	39.6	41.3	40.9	41.5	42.5	42.5	42.5
Per Capita of Population									
MCF Gas Sales	3.15	3.29	3.69	4.08	4.34	4.68	5.04	5.38	5.76
Per Mile of Gas Mains									
Population	540	521	504	483	458	427	384	385	371
Consumers	46.3	44.5	46.9	47.6	48.2	48.0	49.0	50.0	50.0
MCF Gas Sales	1,680	1,710	1,855	1,966	1,983	1,992	2,076	2,082	2,125

In the case under consideration, the Company's new business policy has in the past been anything but aggressive and in the future estimates the same sort of business-getting methods were obviously contemplated. Even a casual survey of prospective consumers convinces one that by the expenditure of a limited amount of energy, it will be easily possible to increase the average of "consumers per mile of main" to at least 65 and probably higher. In Table No. II. appears a revision of the Company's estimates of future consumers predicated on the ability to increase the consumers per mile to 55 in 1923, 60 in 1924 and 65 in 1925 and 1926. The realization of these figures will assist very materially in increasing the revenue per dollar for distribution system construction but may, because of an increase in gas sales, involve some increase in capital outlay for added plan capacity.

Paralleling to some extent the unit discussed above and acting partially as a check thereon is the ratio of population to consumers or "population per consumer" as set forth in these analyses. This unit may not remain as constant as the "consumers per mile of main" as it has a tendency to vary with changes in the character of population. Average sizes of families, percentage of foreign population and average wealth, or rather spending power, of the individuals making up various communities control to a great extent this particular ratio. The average, however, should not vary, if business is prosecuted with any diligence, more than from 13 or 14 of population per consumer in districts having high percentages of wage earning foreigners, to 4 to 5 where the foreign population is low and where incomes are had from other than the daily wage.

Reverting to the case in point, the Company estimated that it could better its ratio of consumers to population from the low of 11.7 in 1919 (See Table No. 1) to 7.4 by 1926, ignoring the fact that increasing the number of consumers per mile of main would aid materially in bettering the "population per consumer" unit. Upon reestimating as per Table No. II, the writer has set 5.7 of population per consumer as easily reachable by 1926 as being comparable with the 65 consumers per mile of main.

Following in this general trend of analysis and again mirroring commercial methods, comes consideration of the quantity of gas sales per consumer for any fixed period of time. With the gradual or rapid advancement in prices of competitive fuels over those for gas, the average amount of gas used per consumer annually will increase unless its use is restricted by some definite cause such as poor or irregular service, definite shortage of generating capacity or the like. The development of appliance refinements and the encouraging of more widespread and diversified usage of gas should give added momentum to the natural increase in consumption per consumer. By way of parallel, witness what effect the economic mazda lamp had on the electric lighting business. No definite limits of this unit can, nor should, be safely set for with the rapid influx of house heating and many new industrial uses for gas, the upper average limits are not yet in sight.

This gas company, whose estimates are being here mangled, seems to have considered 42.5 mcf per year as the maximum obtainable consumption per consumer (see Table No. 1) while even the 46.0 mcf set up in Table II for 1925 and 1926 seem low in view of the fact that a large number of present consumers have only one appliance, i. e., the range, but have use for others, viz., waterheaters (both plain and automatic) and space heaters. The industrial possibilities too have not been worked over with any degree of thoroughness.

Three other units are used in these first three analyses, viz., mcf gas sales per capita of population, population per mile of main and gas sales per mile of main. They are of lesser importance than the ones dealt with in detail above but serve, in the light of past history, to act as checks on other unit forecasts. The first and third secondary units men-

TABLE NO. II.

Improved Physical Estimates by Years.

Item.	1923 Estimated	1924 Estimated	1925 Estimated	1926 Estimated
Basic Data:				
Population	84,000	90,550	96,700	103,400
Increase over last year	8%	8%	7%	7%
Consumers	10,850	13,200	16,300	18,220
Increase over last year	32%	22%	23%	12%
Mcf. gas sales	466,000	580,800	750,000	839,000
Increase over last year	38%	25%	29%	12%
Miles of gas mains	197	220	251	280
Increase over last year	16%	12%	14%	12%
Per Consumer:				
Population	7.7	6.9	6.0	5.7
Mcf. gas sales	43.0	44.0	46.0	46.0
Per Capita of Population:				
Mcf. gas sales	5.7	6.4	7.8	8.1
Per Mile of Gas Main:				
Population	427	384	385	371
Consumers	55.0	60.0	65.0	65.0
Mcf. gas sales	2,370	2,640	2,990	3,000

tioned should tend to increase and the second to decrease if the estimates follow the usual historical trend.

Based on the foregoing units, there appears in Table No. II a reestimate of total annual gas sales for the four years ending December 31, 1926, which are considerably in excess of the company estimates. To reach them or surpass them the company intends to drive earnestly for the maximum economic development of new business and concentration of consumers on its distribution system.

C. ANALYSES AND ESTIMATES OF EARNINGS AND EXPENSES

Tabulation No. III analyzes the Gross Earnings, Operating Expenses and Net Earnings from operation on the bases of the same units used in comparing physical performances. The term "Gross Earnings" as here used includes the Company's revenue from all public sources the component parts of which appear in unit form in Table No. V.

Operating expenses include the usual items of cost gas manufacture, distribution, street lighting, new

TABLE NO. III.

Analysis and Estimates of Earnings and Operating Expenses By Years

ITEM.	1918 Actual	1919 Actual	1920 Actual	1921 Actual	1922 Actual	1923 Est'm'd	1924 Est'm'd	1925 Est'm'd	1926 Est'm'd
Totals—									
Gross Earnings	$202,200	$258,100	$333,200	$401,500	$494,400	$567,900	$662,000	$754,100	$856,800
Operating Expenses	159,700	183,700	220,000	257,500	286,500	312,000	358,000	414,900	463,400
Net from Operation	42,500	74,400	113,200	144,000	207,900	255,900	304,000	339,200	393,400
Operating Ratio	79%	71%	66%	64%	58%	55%	54%	55%	54%
Per Consumer—									
Gross Earnings	$42.80	$48.40	$54.20	$56.75	$60.00	$60.00	$61.50	$61.50	$61.30
Operating Expenses	33.85	34.45	35.80	36.35	34.85	33.00	33.30	33.80	33.10
Net from Operation	8.95	13.95	18.40	20.40	25.15	27.00	28.20	27.70	28.20
Per Mile of Gas Main—									
Gross Earnings	$1,985	$2,152	$2,540	$2,695	$2,905	$2,880	$3,010	$3,000	$3,060
Operating Expenses	1,567	1,532	1,680	1,730	1,685	1,583	1,625	1,652	1,655
Net from Operation	418	620	860	965	1,220	1,297	1,385	1,348	1,405
Per MCF Gas Sales—									
Gross Earnings	$1,238	$1,254	$1,368	$1,370	$1,467	$1,447	$1,450	$1,445	$1,440
Operating Expenses	.978	.891	.904	.877	.852	.797	.783	.795	.778
Net from Operation	.260	.363	.464	.493	.615	.650	.667	.650	.672
Per Capita of Population—									
Gross Earnings	$3.75	$4.13	$5.05	$5.58	$6.36	$6.76	$7.30	$7.78	$8.28
Operating Expenses	2.96	2.94	3.34	3.58	3.69	3.71	3.95	4.27	4.48
Net from Operation	.79	1.19	1.71	2.00	2.67	3.05	3.35	3.51	3.80

Note: Operating Expenses as herein set forth include all maintenance charges and taxes.

TABLE NO. IV.
Improved Estimate of Earnings and Operating Expenses by Years.

Item.	1923 Estimated	1924 Estimated	1925 Estimated	1926 Estimated
Totals:				
Gross Earnings	$674,300	$842,200	$1,083,700	$1,208,100
Operating Expenses	371,400	454,700	596,200	652,700
Net from Operation	302,900	387,500	487,500	555,400
Operating Ratio	55%	54%	55%	54%
Per Consumer:				
Gross Earnings	$62.10	$63.80	$66.52	$66.25
Operating Expenses	34.20	34.50	36.61	35.82
Net from Operation	27.90	29.30	29.91	30.43
Per Mile of Gas Main:				
Gross Earnings	$3,430	$3,830	$4,325	$4,315
Operating Expenses	1,885	2,065	2,375	2,335
Net from Operation	1,545	1,765	1,950	1,980
Per Mcf. Gas Sales:				
Gross Earnings	$1.447	$1.450	$1.445	$1.440
Operating Expenses	.797	.783	.795	.778
Net from Operation	.650	.667	.650	.662
Per Capita of Population:				
Gross Earnings	$8.03	$9.30	$11.20	$11.66
Operating Expenses	4.42	5.02	6.17	6.31
Net from Operation	3.61	4.28	5.03	5.35

business getting and general expenses as prescribed in the Uniform System of Accounts for Gas Corporations put out by the National Association of Railway and Utilities Commissioners, together with all tax charges. No so-called "fixed charges" for security interest or dividends are included as operating expenses, these being applied against "Net Earnings from Operation" in Table No. VII in order to derive from the Company's future estimates some conception of the net revenue applicable to common stock dividends, surplus, etc.

Table No. IV indicates a reestimate of possible earnings and expenses based on the gas sales as developed in Table No. II. The benefit of concentration of business on the existing main system and of increasing the quantities of gas per consumer per year stands out most clearly by comparing the net earning forecasts in Tables III (the Company's) and IV (the improved estimate).

With a view to being conservative in these estimates, the writer has employed the same unit operataing expenses (per mcf) as did the Company for the years 1923-4-5-6, although by virtue of increased plant output—attendant upon the increase in sales shown in Table No. I—there will undoubtedly be some reduction in operating expenses per mcf sold.

Numerous operating executives seem to have a pet hobby of using "Operating Ratio" and any changes therein as their barometer of the utility business. (By operating ratio is meant the ratio of operating expenses to gross earnings.) It is undoubtedly a fact that an improvement in operating ratio is to be desired, other factors in the earning power of a company being equal, but the fallacy of using the operating ratio as an indicator of improvement or loss in a company's earning capacity is shown by a comparison of the estimated future ratios in Tables Nos. III and IV. They are identical although the earnings in Table IV are considerably higher than those estimated in Table No. III, because of the increase in gas sales on which the former is based.

(Continued on Page 161)

TABLE NO. V.
Division of Unit Gross Earnings—Yearly Averages.

Year	Gas Sales	Appliance Rentals	By-Product Profits	Merchandise Profits	Miscellaneous	Totals
Actual:						
1918	$1.229	$.000	$.001	$.008	$.000	$1.238
1919	1.232	.001	.012	.008	.001	1.254
1920	1.322	.008	.007	.030	.001	1.368
1921	1.331	.004	.002	.033	.000	1.370
1922	1.418	.007	.008	.031	.003	1.467
Estimated:						
1923	1.400	.007	.010	.030	.000	1.447
1924	1.400	.008	.012	.030	.000	1.450
1925	1.400	.008	.012	.025	.000	1.445
1926	1.400	.008	.012	.020	.000	1.440

Good Will Advertising

Public Service Company's Problem Peculiar. Development of Industry Leads to Loss of Personal Contact

J. W. Green

Westchester Lighting Co.

In this article, which was delivered before the annual meeting of the Commercial Section of the Empire State Gas & Electric Association, attention is called to the need of good will advertising to compensate for the loss of personal contact with the gas customer. It is indicated that the public is more apt to read articles on particular phases of the gas company's business, written from the standpoint of the consumer than regular advertising copy.—Editor's note.

THE term "Good Will" in private enterprise is somewhat different when applied to Public Utilities. In private business two or more concerns in the same line of business compete with each other. One by advertising keeps its name constantly before the buying public and through attractive sales advertising draws trade to its store, and then by courteous treatment, good merchandising and good service holds this trade until the buyer forms the habit of going to that store first for his needs. It is the habit which really constitutes good will and can be capitalized for what it is worth.

Good Will of Public Utility Different from Ordinary Business

The good will of a public utility company is different in that its customers must of necessity deal with it; they cannot go elsewhere. The company must overcome this natural prejudice and the more it is overcome, to that extent it can capitalize as good will.

Those of you so placed, where you can feel the pulse of the public relations of your company, will have felt a quickening of the feeling of the public against your company in the last decade and I believe this to be due to the fact that during that time the service of the utility has become indispensable to practically all of your people.

It is not very many years ago when most every gas range had a coal range alongside and the user of electric light had gas or oil as emergency. Those of you that were in the commercial office then and that are there now will see the difference in the attitude of the consumer. Then, if there was trouble with your operating department and your consumer had to light his coal range or use his emergency for light, your local paper went into detail to advise the people what was wrong and you got considerable sympathy; or if your consumer for good reason or otherwise felt he had not been treated fairly he simply went back to his old system and used that to work out his spite until he realized he perhaps was as much in the wrong as you and came back as a booster for your service.

Conditions of Service Changed

The condition now has changed materially and I think you will find that those companies, who have first experienced this change from auxiliary service to absolute dependence of the public on you, were first as a rule to feel the apparently unwarranted attacks on your company, for the reason that your consumer in many cases never complained to you and, when he did, he still felt aggrieved and went about continually finding fault not to you but to his neighbors, until the man running for office heard these calls and capitalized the ill will against you.

Personal Contact Lost

During these years the public utility companies spent all their energy in improving the service, perfecting manufacture and distribution, reducing the cost of its product and through sales promotion and appliance advertising built up its business, and the larger it grew, the further away its consumers went, the personal touch became lighter as the gross sales increased. The organization of departments went on so that when the consumer requested some attention, it was necessary to find the clerk in that particular department to get a stove adjusted or some other department to have a meter exchanged or an account closed. Each advance in organization seemed to put the consumer further away from the company and all personal interest was lost.

The service was so improved as to be almost faultless but the fact that the consumer could not go elsewhere and was absolutely dependent upon the one concern in which he had no personal interest tended to breed a feeling of oppression. The mission of good will advertising is to overcome as far as possible this feeling in the minds of the customers. There is, I believe, also another solution but it is not in the province of this paper to take it up.

Consumers Do Not Know Extent of Service

It is a well known fact that very few consumers of the modern plant have any conception as to what is necessary in order to provide service. The gas works is located at some distant point in the city. The knowledge of the fact that it is necessary to consume very large quantities of coal, oil and other materials in order to manufacture the product is lost sight of completely so that the idea gradually formed is that the only expense is a small office force and the man once in a while to adjust the appliances.

Good will advertising should bring home to the people some of the difficulties the company encounters in carryng on its service and the problems to be solved. Timely articles which help to make the consumer understand something about the business should form a part of this advertising campaign. Until recently practically nothing was done by the utility companies in the way of good will advertising. Appliances were advertised freely but the large or main part of its business was neglected. In this company when agitation was started in connection with the rates, the company found it advisable to do considerable advertising along lines mentioned and apparently with great success. The stories were written and published in separate sections of the daily newspaper giving the consumer's viewpoint of some particular feature and the company's explanation. These articles were on various subjects and most of all were written from the consumer's viewpoint.

Consumers Read Articles Rather Than Advertising

About one year ago we put out a number of issues of our special paper and in one of them had an article of special interest to the consumer and for three or four days following the issue, our collectors made inquiry each day as to whether or not the article had been seen and read. The result of this canvass was as follows—932 inquiries were made by the collectors, of this 730 people acknowledged having seen and read this article, 82 people admitted reading the paper but did not see the article in question and 120 did not take the paper in which the article appeared. This canvass showed that through advertising of this kind 90 per cent of the customers were reached and 80 per cent of them read the stories about the business. This result seemed exceptional for advertising but the method we adopted seemed to have very far reaching effect and appealed to our customers where ordinary advertising space would not.

I believe that within a very short time all companies will find it absolutely necessary to increase to a very great extent good will advertising. People must be given to understand the difficulties under which the utility operates, the problems it must meet and what it is trying to do for its public. This fact was brought out very forcibly at the recent hearing before Governor Smith in reference to the O'Brien bill at which hearing he made the statement, "The point I am trying to make is we have constant turmoil between our people and the public service corporations because the public service corporations do not seem to want to try to get the people to understand anything," and in another place he stated, "The letters that come to me from public officials in these different counties and different municipalities throughout the State indicate that even they do not understand." This refers to the question of the service charge which was being discussed at the hearing.

Work of Public Utility Information Committee

Some work is being done by the committee on public utility information in broadcasting information in connection with gas and electric business and while this information is used to a considerable extent, I do not believe it is getting the result we would like to see. One reason for this is that the information must of necessity be general in character, whereas articles of local interest would be more apt to gain the attention of the consumer in each locality. It is something of local interest that is needed to awaken the feeling of the consumer so that he will give some consideration to your problem. He is not apt to connect the idea of general interest with his local company.

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*UTILITIES MAY NOT CAPITALIZE THEIR PROFITS

A Few Pertinent Remarks Regarding Utility

Not one person in a thousand understands what is meant by "financing" a public utility.

John Jones owns a forty-acre farm. By thrift and hard work he lays away some money and buys another forty, and another eighty; then he buys another quarter-section. It has all been done out of the profits of his business. Another buys a second or a third store from the profits he makes in his initial venture.

But it is not so with a public utility. Not a penny of the profits of a corporation is permitted to be invested in new business or new installation. All of the limited profits must be paid to the myriads of stockholders who are scattered all over the country and who have invested their money for a return that practically amounts to interest.

Maximum Profit Set for Utilities

No regulatory body sets the price at which the merchant or the agriculturist sell their products. The price is governed by supply and demand and by competition. But the utility is allowed a maximum profit—if the business can make a profit. Contrary to opinion there is no profit guaranteed. If good fortune or exceptional management result in a profit that threatens to exceed that contemplated by the governing body the rates are at once accounted excessive and accordingly reduced.

Every enlargement of service by a public utility must be made out of the capital account; hence new "financing", which means the sale of stock to new partners in the business or the sale of bonds, is equivalent to the mortgage that John Jones gave when he purchased his second piece of land or the merchant when he increased his stock of goods.

It is another fallacy to think that corporate bonds can be retired out of earnings. The debts of corporations are never paid, except by new bond issues.

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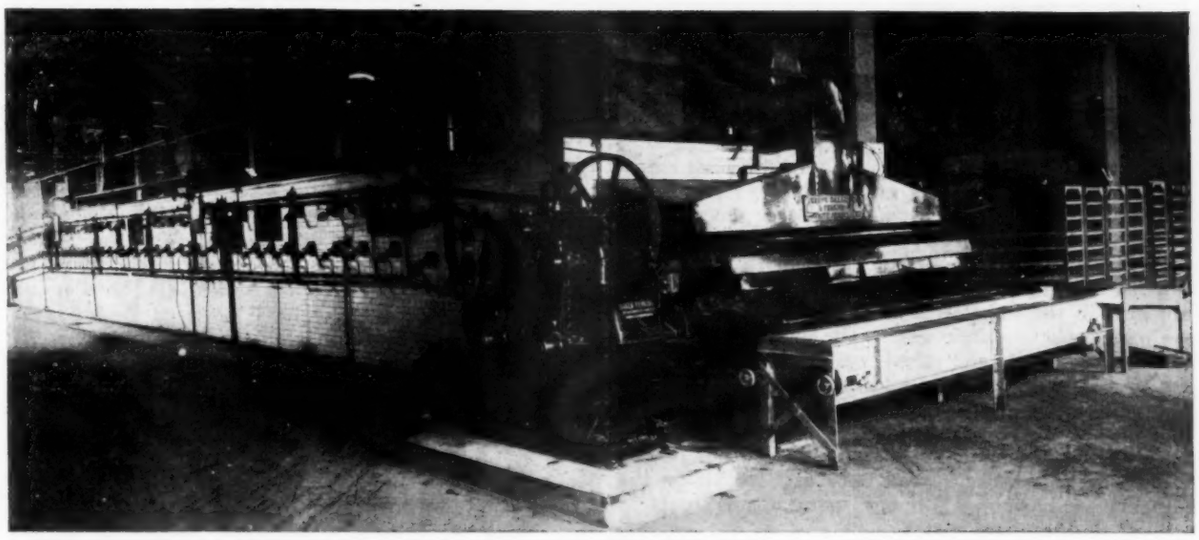
*From the Michigan Committee on Public Utility Information.



Bread Baker Heated by Gas

Gas In the Baking Industry

J. A. Sutton

Gas is becoming an increasingly potent factor in the baking industry. Recent developments have made the direct-fired gas baking oven a real competitor of the coal fired oven. As Mr. Sutton states cost of fuel is not the proper basis on which to compare the two kinds of baking ovens. That gas fired ovens are preferred in spite of a higher fuel cost is demonstrated by the steady increase in its popularity among the bakers.

PRIOR to 1920, the use of gas on the larger bakery ovens had been confined to indirect heating by burners placed in the furnace of flue-type or steampipe ovens. Such gas burning equipment was usually supplied after the oven had been installed, the oven construction remaining practically the same as for coke or coal firing.

In 1920, the first large continuous, direct-heated gas oven for the baking of bread, was placed upon the market. Today more than one hundred traveling plate bread ovens, direct-heated by gas, are in operation or in course of construction, in Canada and the United States. In addition, a large number of the leading cracker manufacturers use direct-heated gas ovens for the production of biscuits and wafers.

The traveling plate oven had always been recognized as the logical oven for large output, as these ovens produced a uniform product and could be operated continuously without loss of heat. As long, however, as these ovens were heated by coke or coal, there were several outstanding disadvantages and these led finally to the abandonment of the flue-type oven in favor of the more compact and more easily handled direct-heated gas oven.

Advantages of Direct Heated Gas Oven

The advantages presented by the direct-heated gas oven may be summarized as follows:

Its weight can be held down to practically one-fifth that of the flue oven. This one factor eliminates the need for costly structural supports in the design of new buildings or of costly alterations in existing buildings. Overall width and height being subsequently reduced, the oven can be built in practically any bakery without alteration of column centres or of beam levels.

As the highest temperature in the entire oven does not exceed the temperature of the baking chamber, expansion difficulties are reduced, and the problem of effective insulation against loss of heat is brought under control. Upkeep costs are lower, as there are no expensive replacements of furnace and flue linings. If repairs or adjustments are necessary, the oven can be cooled in a few hours instead of days, as with the flue oven, and such work can be carried out in the usual stand-by periods.

The flexibility of the gas oven makes possible the baking not only of bread, but also of all varieties of rolls, buns, pastries, etc.

Gas heated bread and biscuit ovens have been adapted to use natural, city, and in a few cases, producer gas. The matter presents a variety of problems arising chiefly from the difficulty of getting a gas that is mechanically and chemically pure.

Development of Gas Fired Oven

The problem that hindered the development of gas fired ovens was to procure gas of the particular characteristics to burn most efficiently and maintain

the proper heat throughout the oven. Due to the necessity of blowing steam into the oven it was found that a pressure was built up in it, and that city gas would not burn efficiently against this pressure. Also, variations in the city pressure produced temperature changes that prevented a continuous run of uniform product. It was not until a system of gas control was perfected that allowed the gas pressure to be increased and governed, that success in the traveling oven was assured. It was further found that the system, that could deliver a partial air-gas mixture to the bunsen in non-explosive proportions, allowed sufficient increase in the energy of the gas stream due to its increased weight, to both insure the proper inspiration of additional aid required for combustion and the proper combustion of the gas in the oven by the steam injected.

This guarantee of complete combustion has placed the gas fired traveling oven once and for all on the competitive basis with ovens using other fuels in respect to operating costs.

Operating Costs

In the matter of operating costs, it must be admitted that a straight comparison of fuel costs only will go against the gas oven. The only fair comparison, however, is to be made on the basis of the ledger accounts to which have been charged all labor, storage, haulage, and general overhead charges for maintenance and running expenses of an oven. In such a comparison the controlled gas oven wins.

Sight must not be lost of the fact that gas is always available, does not fluctuate rapidly in either quality or price, and that gas is not paid for until twenty to thirty days, on an average, after it is used.

Illustration No. 1 shows an installation of a traveling gas fired baking oven operated with a patented system of gas combustion. The oven is 70 ft. by 9 ft. and will bake on an average of 3,500 lbs. of bread per hour, the actual quantity depending upon the nature of mixing and the method of handling.

The cost, using city gas of 600 B. T. U. value at $1.00 per M., will average 75c per thousand pounds of bread baked. This figure includes standing by, and preheating consumption, actual figures again depending upon the method of handling.

Cost of Using Coal

Coal fired traveling ovens of the fuel type would burn 70 lbs. of coal per thousand pounds of bread baked, including standby losses. With coal at $12.00 per ton this would amount to forty-two cents per thousand pounds of bread baked (figuring on the purchase of coal only).

A coal fired traveling oven of the steam pipe type will burn about 55 lbs. of coal per thousand pounds of bread baked, making a cost of thirty-three cents per thousand pounds of bread baked.

On these figures we have to emphasize the fact that comparison must not be a straight one on fuel cost alone, but must include all charges of maintenance, labor, etc., while bakers do not care to show their ledger accounts on these items, they reveal how the matter stands, by continuing to buy gas heated ovens in preference to all others.

EFFICIENT PURCHASING

F. P. Mooney

An impression is somewhat prevalent that the average purchasing department performs its work with reference only to the cost of the commodities purchased. This idea has recently been given considerable publicity by an article in a prominent magazine in which, not content with charging the purchasing agent with most of the ills, both industrial and economic, that have been catalogued, the writer caps his fulmination with this quotation: "a P. A. is a man who knows that 99 cents is less than $1.00 and that's every damn thing he does know." His radical pronouncement recalls the freshman's description of a lobster as "a red fish that swims backward" and the professor's rejoinder that, aside from the fact that the lobster is not red, nor a fish, and does not swim backward, the definition was substantially correct. Needless to say the gentleman was promptly admonished by competent authority that, failing the exercise of caution, he was in danger of falling into the error of exaggerated statement.

Costs Not Only Consideration in Purchasing

Notwithstanding erroneous theory, however, only slight reflection is necessary to confirm the fact that a high degree of purchasing efficiency is incompatible with a policy so short sighted. The purchasing department could, it is true, establish an enviable record of prices if costs were the only consideration, but with short lived satisfaction to all concerned. In our practice, however, price is considered only as one of the conditions of the transaction, and its importance is determined by the related factors of quality, service and the responsibility of the bidder.

Efficient purchasing does not imply a fixed policy of buying either the cheapest, or the costliest, but rather the exercise of discrimination and sound judgment, to the end that the article purchased shall be amply good,—but not too good, for the use intended. In determining the question of quality and durability we are aided by the experience of our client companies, and by our records, and these essentials, together with the other details that make for a "good buy," we endeavor to safeguard in every transaction.

The methods which we have successfully applied to the work of the department over a period of twenty-two years leave nothing to chance and take nothing for granted; each requisition is given careful and systematic attention and the maximum of time and effort that is warranted by the expenditure involved; and the order is so worded as to constitute a complete and binding obligation, upon its acceptance by the vendor.

By reason of these methods we do not hesitate to assure to the companies which we serve one hundred per cent in value received for each dollar which we expend for them.—From Tenney Service, July, 1923.

Utility Bonds Safe for Savings Banks

Why public utility securities are safe and attractive investments for people.

H. H. Addinsell

Harris, Forbes & Co.

The following address, which was delivered before the Fourth National Conference of the National Association of Mutual Savings Banks by a financial authority and which was originally published in Public Utilities, contains a message of considerable interest and importance to the gas industry. It speaks very well indeed for the public utility industry in general and for the gas industry in particular, it affords an added argument for customer ownership, the safety and security of investment in public service securities when a banker and financier of the highest standing and reputation publicly declares that the bonds of utilities of first grade are good enough for savings banks. If these bonds can meet the requirements of savings banks, which are known to be of maximum standard, it indicates the very strong position of the utility field and the high regard which such enterprise is regarded by the banking world. Such endorsement should convince the most skeptical of the safety of public utility securities.

WITH their splendid record of achievement even in the face of several rather trying periods, I do not hesitate to reaffirm my belief that there are first grade utility bonds which would be appropriate for the investment of savings banks with full cognizance of the high standards of savings bank requirements.

"You who guide the destinies of the savings banks with their 10,000,000 depositors and $7,000,000,000 of saving assets may easily be blase toward large figures, but it may interest you to know that the investment in power and light, gas, telephone and telegraph utilities is estimated at $10,000,000,000, as against $18,900,000,000 for railroads, according to the Interstate Commerce Commission figures.

These utility properties are not as apparent to the public eye as railways because people do not go to the stations or travel on the lines of energy, although many millions of people are dependent on their product. The citizens of the community have a vital and daily continuing need for the services of these utilities and the common welfare demands the continuance of the utilities' rights to use the highways to reach their customers. Were all the utility properties as conspicuous as the railways, these great generating stations, numerous substations, thousands of miles of underground structure and still more miles of great transmission lines and distributing systems would be so impressive in their visual realization as to forever silence questions as to their stability or value as assets.

Political Risk

Closely bound up with the question of franchises is the second objection which has been raised—the political risk. The utilities are a familiar part of the daily lives of so many citizens that any reference to them—and particularly a hint as to the possibility of lower rates—commands widespread attention, thus affording the local politician with demagogic tendencies the same golden opportunity for self-advertisement that the railroads offer his fellow in national politics. Considering the tremendous noise raised by such gentry in recent years, it is somewhat remarkable to observe the marked absence of definite results. Some of the weaker traction companies were forced to the wall during the most critical period of high costs and high wages, but the intrinsic effect of all the clamor on the gas and electric companies has been practically nil. One might have expected from the floods of oratory that municipal ownership is about to sweep the country. As a matter of fact, the tendency has been rather in the opposite direction, for I understand that a total of over six hundred municipal plants have been abandoned, the great majority during the past ten years.

There are several causes for the failure of those who would have overthrown the utilities for the benefit of mankind. In the first place, the courts have stood ready wherever necessary to protect the utilities against confiscation of their property either through forced sales at unfair prices or through unfair rates. Furthermore, a large proportion of the utility companies have built up a bulwark for themselves against political attack by selling their securities locally, and particularly among their employes and customers. It is estimated that there are over three and one-half million stockholders of utilities in this country and that one family in every seven holds utility stock with an average holding of less than ten shares. At the end of the 1919 it was estimated that out of $6,000,000,000 of assets of American life insurance companies $2,000,000,000 were invested in public utility securities, so that several million more voters are indirectly financially interested in a square deal for and the continued prosperity of the public service companies through their life insurance policies.

It Touches His Pocket

While the average citizen may not pay much attention when you point out to him that the comfort and convenience of his daily existence depend to a large extent on the continuation of good utility service that can only be furnished him by a solvent, prosperous company receiving an adequate remuneration

for its services, he will give very prompt and immediate attention to the statement that if rates are lowered below a certain point his dividends may stop. This line of thought undoubtedly had a great deal to do with the two for one majority by which the California voters defeated the vicious "water power amendment" to the State Constitution which was placed before them at the last election. The protection afforded the utilities from political attack by these customer owners is increasing each year. During 1922 over $175,000,000 of preferred stocks were sold by utility companies to their customers and employes, and there are a number of similar campaigns under way this year.

Steady Growth and Progress

To sum up, the utilities are essential industries and the demand for their product is increasing steadily. Their business, furthermore, presents a number of special advantages not enjoyed by other classes of industry, all of which tend toward the steadiness and stability which appeal to the institutional investor. Their sales are made for cash and without competition. They are not subject to inventory losses. Most important of all the labor hazard, except in the case of the street railways, is very low. The record of these industries since their earliest days has been one of steady and practically unbroken growth, both in assets and in earnings. Their securities—again excepting the street railway companies whose bonds we do not suggest as suitable at the present time—have an enviable record. On January 1, 1922, it was estimated that there were outstanding in railroad bonds and junior securities $11,931,000,000, of which $101,117,600, or eighty-four one-hundredths of one per cent, were in default. At the same date it was estimated that $2,592,000,000 electric power and light securities were outstanding, of which only $3,690,000, or fourteen one-hundredths of one per cent, were in default. During the slump in the bond market last January, the figures of the Harvard Economic Service show that second grade rail bonds lost 2.24 points between high and low, and the highest grade rails lost 1.80. Utility bonds fell off less than one point.

INDUSTRIAL GAS IN LIME SLUDGE RECOVERY OPERATION

Certain paper mills manufacture pulp by digesting raw materials with caustic soda. They produce what is known as soda cellulose. The large mills generally make their own caustic soda by the causticizing of a solution of common salt or other sodium salt with the aid of milk lime. A by-product of this causticization process is lime sludge, which is primarily constituted of carbonated lime.

This sludge is filtered and obtained in the form of semi-dry coal, which must afterwards be calcined in a rotary furnace or kiln. The process of calcination produces quicklime which can then be slaked and used over again in the causticization process. The calcination of the lime required heat and inasmuch as a rotary kiln is a rather long affair—being in actual length 100x7 feet in diameter—the conditions under which this heat is applied are rather special.

There are three kinds of fuel that can and are actually being used for heating the kiln. These are producer gas, oil and powdered coal. As far as oil is concerned there are only a few plants, those that happen to be advantageously situated from the geographical standpoint, that can use oil for this purpose. Hence, for all practical purposes, it is not necessary to give any serious consideration to oil as an industrial fuel in the calcination of lime sludges. The real competition is between powdered coal and producer gas. Both require installations for the manufacture of the fuel in condition to be used in the kiln. There is also a possibility of using manufactured central station gas provided the same can be supplied with the proper heat value and at a cost to commensurate with competitive conditions.

The interesting point in the use of gas for the calcination of lime sludges in comparison with pulverized coal is that gas gives a much better product than coal. In fact, experience has shown that gas has many more advantages than coal and is the most logical selection provided the lime sludges are calcined with a good quality of gas. The product is absolutely free from all impurities. The quicklime is perfectly clean and not discolored in any manner. On the other hand, when powdered coal is blown into the kiln and burned therein, a certain amount of ash and clinker and in certain cases unburnt carbon as well becomes mixed with the quicklime, producing a discolored and impure product. It has been estimated that a ton of the recovered lime can be produced with the gas made from six hundred to eight hundred pounds of coal of the proper grade. It is always wise to use the best grade of gas coal that can be obtained.

In further comparing the efficiency of pulverized coal and gas it has been found that the ratio between lime and fuel is three to one for producer gas as compared with 3.4 to 1 pulverized coal. These tests were made with raw lime in a large rotary kiln. But the fact remains that even though pulverized coal may be more economical, the contamination of the lime with ash and clinker and its discoloration with unburnt carbon are disadvantages that more than counterbalance the greatest cost of fuel when gas is used.

If the amount of money that has been thrown away by people who advertise spasmodically was all gathered together it would form and endow the most wonderful home for aged advertising men and their widows in the world. Don't throw any money away. If it is worth doing at all, it is worth doing all the time.

NEW DOHERTY SUBSIDIARY

New York, N. Y.—Henry L. Doherty, president of the Cities Service Company, announced the formation of the Public Service Company of Colorado, a new subsidiary which is to include the Denver Gas and Electric Light Company of Denver, the Western Light and Power Company of Boulder and the new power plant development at Valmont, Col.

As The Journal Views It

PUBLIC UTILITY SECURITIES

Within the past few years serious efforts have been made by public utility companies, amongst which may be included the gas companies, to interest the public, the consumers who contribute toward the revenue of these companies, in investing their savings in public utility securities. Customer ownership, as it is called, is the goal toward which many public service companies are working.

It is not necessary to discuss or explain the advantages that would be gained by public utility companies through customer ownership. They are evident and have been amply described in many reports and articles. However, great as these may be, there are just as great, if not greater, advantages to be gained by the people who invest their money in such securities. In other words, the whole proposition is an essentially mutual affair. Both parties are bound to gain by it and for this reason if not for any other reason, customer ownership should be looked upon with favor, both by utility companies and the investing public.

Recently a well known banker of high reputation made a statement regarding public utility securities which is of tremendous importance and interest to both gas companies and the investing public. It was stated that the securities of high grade public utilities possess the necessary qualifications and characteristics to make them suitable for investment by savings banks. This is really the highest praise that can be bestowed upon any company, for it is well known that savings banks are ultra-conservative, as they have to be by law, in making investments of the funds that are entrusted to them by their depositors. If the bonds of public utility companies are held to be so safe, so secure and such good investment in the opinion of a leading financier and banker of international reputation that savings banks are recommended and advised to invest their funds in them, there remains no good reason why the private investor himself should hesitate in buying public utility securities.

The degree of safety which characterizes savings banks is based upon the conservatism of their investments. If public utility securities are so good and so suitable that they can pass the strict requirements of savings banks, then the men and women, who put their savings into savings banks, can invest it with the greatest of safety in public utility securities. This speaks well for the reputation of the industry and it means the gas industry as well as the other public utility industries. It means that gratifying progress is being made, that the industry is in a healthful condition, that people have confidence in it. It is something to be really proud of for it shows that a measure of real success has been attained and that the gas industry together with the other public utilities has reached a veritable enviable position in the business world.

HOUSE HEATING BY GAS

One of the chief problems facing the country today, a problem which has been given priority over others by our new President, is the coal situation. Will the operators and miners come to an agreement before September first or will relations be broken off and a strike ensue? Will both sides take into consideration the consuming public who are dependent on anthracite coal for heating homes, or will they as usual throw all decency to the winds and act in accordance with their own selfish desires and interests? Will they heed the admonition coming from the Chief Executive of the Nation to settle their difficulties and perform their duties to the public?

What does this mean to the gas industry and to the use of gas both in the home and in industry? In the New England States, various committees and commissions are advocating the boycotting of anthracite coal and the use of other fuels in its place with the intent in mind to teach the operators and miners a much needed lesson. The Government at Washington has already announced that it would advocate the use of substitutes for anthracite coal in case the strike took place. Due to the discordant and unfriendly relations which apparently already exist between coal operators and miners, the price

of anthracite coal has risen; if there is a strike it will rise still further, and in fact, strike or no strike, anthracite will be an expensive fuel this winter.

House heating by gas is of course expensive. It has been generally figured to be twice as costly as heating with hard coal. The advantages that are gained from the use of gas as a fuel under the steam boiler are of course great and in certain cases they are appreciated by gas customers. Gas is accordingly used to some extent for house heating because it is so much cleaner, so much more efficient, so much easier to burn than hard coal. If the price of anthracite rises, as the difficulty of securing this coal increases,—and if there is a strike, the difficulty will be very great indeed,—the field opens up more and more for the introduction of gas as a house heating fuel. It will of course have to compete with other fuels such as soft coal and oil, but it can compete with them successfully, for oil burning installations cost more than gas burning appliances and soft coal is altogether a nasty fuel to use in a household. Most people will want to avoid it under all circumstances.

Now is the time to start a house heating campaign to introduce the use of gas as a house heating fuel in households where the mere question of cost is not of paramount importance but where greater cleanliness, efficiency and ease of operation are appreciated. The impending coal strike whether it materializes or not can be used as a forcible argument, for it will bring home to every householder the coal question and the problems that he will have to face in the coming winter. This is the time to take the bull by the horns and make the most of the opportunity.

The use of gas for house heating can become one of the most important factors in the gas company's load. This business can be obtained if it is gone after. There is no time like the present for starting.

SERVICE

If you would be happy and successful, you must learn the greatness, the privilege, and the joy of Service.

Service is doing for others something which ought to be done, when it ought to be done, and where it ought to be done. Service is acceptable when it is rendered with kindly courtesy. Courtesy itself is very pleasant, but to prove the sincerity of courtesy, service must stand back of it.

The opposite of service is selfishness, and the selfish individual limits his own growth by building about himself a Chinese Wall which keeps out everything worthwhile in life. All down through the ages we have splendid, towering figures of men who have been Matterhorns of achievement because of their unselfishness.

These men have won what is vastly more precious than gold or silver or gems—they have proved their right to service. And yet it has taken vision and persistence and effort and sacrifice on their part, motivated by great love of some kind to cause them to render these services.

Whenever a man has permitted his own interests and desires to come between him and the sun—between him and opportunity to serve, he has cast a shadow for all time, and his name has carried with it naught but regret and ignominy.

The life of Livingstone has been called a matchless epic because of the greatness of his service and the richness of his sacrifice in leaving a home of culture and comfort, and pushing into the marsh, and the jungle, and the swamp, "To heal the running sore of the world."

Livingstone gave that most priceless gift of all—himself. And in return he received that richest of blessings—the knowledge and satisfaction that his life had counted in terms of immeasurable service to humanity.

It has been the spirit of service which has made the surgeon, the physician, the inventor, and the business man "carry on" in behalf of progress. If it were not for this, we would still be riding in ox-carts, using tallow candles, and waiting weeks for sailing vessels or slow-going coaches to bring us our mail. Critical operations would not be possible without anaesthetics, and we would still be suffering from loathesome diseases which the scientist has conquered in his laboratory. It is service which has done all this.

In that wonderful work of Ruskin's, "The Seven Lamps of Architecture," he speaks of those which illumine and make bright the world—beauty, truth, and so on. But these and their companions are only able to burn brightly and to shed forth the full radiance of which they are capable when the lamp of sacrifice is lighted.

Service is to life what the gem-cutter's tool is to the precious quartz. It is true service by which the flaws of character are cut away, leaving the gleaming facets of the precious jewel of self to sparkle and to scintillate with their revealed fire.

Service is love for humanity in action. It is what saves the individual from the grossness of sensual gratification. It is the essence of all true progress, the spirit of brotherly kindness and the soul of individuality. Service is that which reaches down or out and offers a helping hand to draw others up. It is the motor power which gives the impetus, the momentum for all forward movements.

There is no truer way to put the brakes on progress than to fail in the great program of service. There is a program for each individual, and if you and I do not keep our appointments in this connection, they never will be kept; for everyone else has his program of service also, and is or should be busy attending to it.

A business is worthwhile, a life is useful, a government is stable in direct proportion to the degree in which it serves. There is no surer way to succeed than to serve others even as we in their places would be glad to have them serve us.

More Analysis

(Continued from Page 152)

D. FUTURE NEW MONEY REQUIREMENTS

Table No VI sets out the capital expenditures which will be required to meet the increase in number of consumers, main mileage and gas output under the conditions of the two sets of future gas sales estimates as per Tables No. I and II.

For the purpose of deriving a net divisible earning estimate, fixed charges have been applied to the estimates of added capital at the rate of 12 per cent per annum and cumulated at that rate with the actual fixed charges for 1922. This 12 per cent is intended to cover bond interest (or preferred stock dividends if the construction money is raised by that means) and depreciation. The actual fixed charge rate for the years 1918 to 1922 inclusive averaged slightly below this estimated 12 per cent.

The necessity of making greater capital expenditures to secure and serve the added business as shown in Table No. II and as referred to earlier in this article is illustrated in Table No. VI.

E. NET DIVISIBLE EARNINGS

Tabulation No. VII shows a general summary of all the preceding estimates both as originally made and as modified. The net divisible earnings, which are applicable to common stock dividends, surplus, etc., to be derived during the next few years by the correction of certain faults in conduct of the gas business of this Company, whose affairs have been discussed herein, are more than double those which could or would have been secured if the faults are not remedied.

This system of analysis is a simple one but by no means the only kind that an be utilized to arrive at the same end. The value of any sort of analysis lies in the ability of the analyst to intelligently interpret the operations under examination and particularly to profit by the results of such interpretation.

TABLE NO. VI.

Fixed Capital Additions—Estimated by Years.

Item.	1923 Estimated	1924 Estimated	1925 Estimated	1926 Estimated
With Growth of Business as per Tables I and III:				
For Plant	$79,900	$109,000	$270,000	$181,000
For Distribution System	59,300	62,200	89,600	91,400
For Miscellaneous	45,000	69,000	65,000	60,000
Totals	$183,200	$240,200	$424,200	$332,400
Fixed Charges (12%)	21,900	28,800	50,800	38,800
Ditto Cumulated	21,900	50,700	101,500	140,300
With Growth of Business as per Tables II and IV:				
For Plant	$89,700	$186,000	$496,000	$282,800
For Distribution System	66,800	110,000	101,300	86,000
For Miscellaneous	50,000	75,000	75,000	75,000
Totals	$206,500	$371,000	$672,300	$443,800
Fixed Charges (12%)	24,600	44,500	80,700	53,200
Ditto Cumulated	24,600	69,100	149,800	203,000

TABLE NO. VII.

Estimated Net Divisible Earnings.

Year	Net Earnings from Operation	Fixed Charges	Net Divisible Earnings
Actual:			
1918	$42,500	$100,100	(—$57,600)
1919	74,400	115,800	(—41,400)
1920	113,200	119,800	(—6,600)
1921	144,000	129,600	14,400
1922	207,900	186,900	21,000
As Per Table III (Estimated):			
1923	$255,900	$208,800	$47,100
1924	304,000	237,600	66,400
1925	339,200	287,400	51,600
1926	393,400	325,200	68,200
As per Table IV (Estimated):			
1923	$302,900	$211,500	$91,400
1924	387,500	256,000	131,500
1925	487,500	336,700	150,800
1926	555,400	389,900	165,500

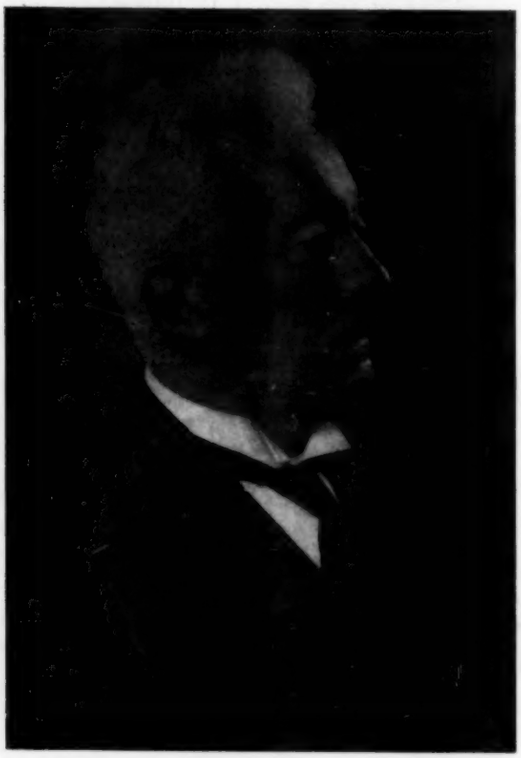
GAS PRODUCER REGULATOR

A valve fixed on a steam pipe leading to a gas producer is regulated by the rise and fall of a gasholder. A duct leads from the gas off-take to a fluid trap, also in communication with the gasholder. Means are provided to supply non-combustible fluid under pressure to the duct connecting the holder to the fluid-trap, whereby the flow of gas from the main to the holder will be prevented. For further details see United States Patent No. 1,451,011.

LOW TEMPERATURE CARBONIZATION PROCESS

To the Editor of the American Gas Journal:

Having carefully read the article by V. E. Caracristi, C. E., on "Low Temperature Carbonization," published in the "American Gas Journal," of July 28th, 1923, I beg leave, first, to compliment and congratulate you for having secured such an astoundingly interesting article for your readers. This "New Process of Carbonizing Coal at Low Temperatures with Increasing Yield" is indeed something in the way of a revelation in gas coal distillation, entirely removed from the old beaten track in common use since the manufacture of coal-gas was first introduced. While Samuel Clegg, sometimes called "The Father of Gas Lighting" in distinction of Murdock, the inventor, mentions the



Frederick Egner

advantages which might be derived by coking the coal in thin layers, and on a moving base; he also pointed out that it was an impractical method and so relegated the idea to the discard: But, Mr. Caracristi and M. Emil Piron aided by Mr. Henry Ford and his organization, at their test unit at Huntington, West Virginia, appear to have overcome nearly all obstacles; resulting in the erection of several large producing plants, whose final results are well worthy of the best attention of the manufacturing branches of the gas industry.

The writer, along the year 1885 bought copies of all American gas patents, beginning with the first, viz., the one issued to David Melville, of Newport, R. I., March 18th, 1813, for "An Apparatus for Separating the Hydrogeneous Gas or Inflammable Air from the Carbon and Less Volatile Ingredients of Pit Coal," which at the date of my purchase had come to be more than twelve hundred, I carefully read all of these and catalogued them, and continued doing this until April, 1890, when the total gas patents had reached 2,500; and I was obliged to stop, because the work of re-designing and reconstructing the Standard Gas Works of New York City from a 5,000,000 cubic feet per day plant to one of double that capacity, and without an inch of extra ground to build upon, left me hardly time to eat or sleep. So, I believe, I am competent to express an opinion as to the wonderful work mentioned in the beginning of this letter. I hope that I shall not be misunderstood as endorsing that remarkable method of carbonizing gas-coal to be an undoubted commercial success or superior to existing methods. This could not be done with nothing further to go on than the very interesting paper mentioned as published in your valuable Journal. But, it is my opinion, that the subject is one for careful consideration of all coal-gas makers.

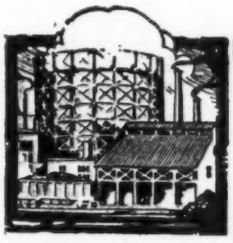
(Signed) FREDERIC EGNER.

MAKING HIGH HYDROGEN CONTENT GAS

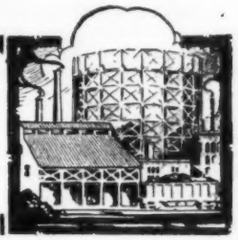
The object of British patent 195,798 is to make gas from such fuels as bituminous coal which contains a relatively high percentage of volatile constituents so that the hydrogen content of said gas is as large as possible. The coal is heated in a vertical, slightly diverging retort which is surrounded by heating flues. Producer gas is passed through these flues in heating the retorts and is made by blowing air through carbonized coal in the chamber below the retort. When the coal in this chamber has been brought to a sufficiently high temperature to render it highly incandescent (this is attained by blowing air through it) steam is then substituted for the air and the water gas which is obtained in this manner is removed through the bottom of the heat flues surrounding the retort.

The gas that is obtained by the distillation of the coal in the retort also passes into the bottom of the heating flues and mixes with the aforementioned water gas resulting in a mixed gas composed largely of hydrogen and carbon monoxide. There may also be a certain proportion of carbon dioxide present. In addition any volatile hydrocarbons which are distilled from the coal and which are not cracked in the retort are subsequently cracked in passing through the flues by keeping the temperature of the fuel in the lower chamber underneath the retort at a sufficiently high point. The reaction, which would result in the formation of carbon dioxide and hydrogen, is prevented from taking place with the result that carbon monoxide and hydrogen are obtained.

The mixed gases that are manufactured in this manner are then passed into the top of a converter at a temperature of 600 to 800 degrees C. The temperature within the converter decreases gradually from top to bottom until it is approximately 400 to 500 degrees C at the bottom. The converter may be operated with a catalyst which is located in the bottom of the apparatus and a desired temperature may be maintained by means of hot gas from the producer.



NEWS OF THE GAS INDUSTRY



Walks 13,500 Miles to Read Gas Meters

Meter Reader Goes the "Camel" Craver and the "Super-X" Shooter One Better in the Journey Forward

By William H. Matlack

Henry C. Buhs, meter reader extraordinary, in the employ of the Illinois Power and Light Company, East St. Louis, Illinois, beats the record of the man who made a record walk for a "Camel" or the fellow who rode eighty miles to purchase the "Famous Super-X" shells, and in so doing was only doing his day's work.

"Henry, the gas-man," as he is popularly known, has been reading meters for twenty-two years, calling on an average of forty-five hundred customers each month, or making in all during his career as meter reader, one million one hundred and eighty-eight thousand calls to the homes of East St. Louis gas users. To get into "figgers" Buhs' duty has called for footwork of at least sixty feet per visit or a total of seventy-one million, two hundred and eighty thousand feet of ground to be trod over, which reduced to miles equals thirteen thousand, five hundred. Now just how many pairs of half-soles this "hoofing-it" consumed, or how many tons of "quarters" Buhs has "toted" in from prepay meters, or how many "tips" he has furnished the sales department, or how many folks he has found appropriating gas—we do not know or are not inclined to try to calculate, we leave that to those who hanker for statistics.

With this remarkable record we do not presume to say that Buhs leads the procession of pedestrian performers—but when it comes to accurateness we cheerfully concede to him the honors and nominate him for the "Champion of Correctness" for it is said by his employer that he holds the enviable record of making fewer incorrect readings than anyone we have yet heard of, his average being one-tenth of one per cent. Mr. Buhs is known by almost every gas consumer in East St. Louis, and is regarded by both his employer and the general public as an efficient, courteous public servant and we therefore nominate him as a candidate for the aforesaid degree from the industry.

Henry C. Buhs

N. J. Gas Association Meeting

Announcement has been made by R. A. Koehler, secretary and treasurer of the N. J. Gas Association, that the summer meeting of the association will be held on Wednesday, September 19th, at Ocean City Yacht Club, Ocean City, N. J.

Correction

On page 145 of the August 18th issue appeared an item headed "Milwaukee, Wis., Gas Rate Lowered" and mentions the Milwaukee Gas Light Company. This was an error on the part of our correspondent, as the item refers to the Minneapolis Gas Light Co. The Milwaukee Gas Light Company is not being re-financed, and has never been in the hands of a Receiver. We are glad to make this correction and regret that our correspondent should have made the error.

N. J. Gas Ass'n Forms Industrial Fuel Committee

Realizing the growing importance of industrial gas, the New Jersey Gas Association has formed an Industrial Fuel Sales Promotion Committee whose object will be to stimulate interest in gas for industrial purposes and to act as a clearing house for information and data relating to this phase of the gas business.

It is the chief function of this committee to arouse the interest of the smaller companies in obtaining the industrial gas load and to stand ready to help the company who have no industrial gas engineer or special man assigned to that work to carry on this business.

Adding New Equipment

The Harrisburg (Pa.) Gas Company is preparing to make extensive changes in its plant. These changes will include the installation of 10 ft. High Duty Condenser capable of cooling 200,000 cu. ft. of gas per hour; the installation of steam driven turbine booster; additions to its blower plant, and yard connections.

The contract for prosecuting this work has been awarded to The U. G. I. Contracting Company, Philadelphia.

Offers Stock to Employes

Charleston, W. Va.—The Columbia Gas and Electric Company, in line with the modern tendency toward improved industrial relations, is offering to sell to all its employes in its various subsidiary companies, including the United Fuel Gas Company, its no-par-value stock, at $32.50 a share.

The stock is regularly listed on the New York Stock Exchange and present quotations are higher than the offer. No definite limit is placed upon the amount of stock to which the employees may subscribe under this plan. The company states it is its aim and expectation to allot to all employees their entire subscriptions where the same are based upon what is consistent for them to absorb by their respective earning powers.

The official announcement of this plan bearing the endorsement of P. G. Gossler, president of the company, shows that employes may purchase stock without expending more than a dollar a month a share.

Almost 4,000 men and women employed by the companies operated by the Columbia Gas and Electric Company in Cincinnati and in the cities and communities of Ohio, West Virginia and Kentucky to which is supplied electric and gas service are affected by this offer and are eligible as purchasers.

The plan involves the creation of no new stock as the shares which will be distributed among the employes have been or will be acquired by the company for the amount already outstanding. A group of trustees, consisting of two employes and three officers, have been chosen to hold the stock for sale to the employes on the installment plan. Neither the company nor the trustees will receive any profit from the operation in the stock. The trustees will continue to hold the shares until employes have paid in full.

The offer comes at a propitious time, as the company has recently changed its capitalization by issuing three shares of no-par-value stock in exchange for each share of its original $100.00 par value capital stock, and at the same time placed the stock upon the dividend rate of $2.60 a share. At the offered price of $32.50 per share, this is at the rate of 8 per cent on the investment.

In a statement explaining the extension of purchase privileges to to all employes H. A. Wallace, vice-president of the Columbia Gas and Electric Company and of the United Fuel Gas Company, the local subsidiary, said: "In accordance with the general trend toward more complete understanding and cooperation in industrial relations, our company desires to give its employes an opportunity to become partners in the business. In this way, they will more directly share in any advantages resulting from their continued loyalty and service.

"All reports of the company are available for investigation as to its security and stability and future prospects."

Even though the purchase plans have not yet been worked out in full detail, assurance is extended to those who wish to purchase immediately that they can do so either by making full payment or by authorizing regular installments to be deducted from the monthly salary at the rate of at least $1.00 per share or from the weekly salary at the rate of at least $0.25 per share.

This will enable every employe to participate. Stock certificates will be delivered within 90 days after the stock has been paid for in full. All dividends paid on each share will be credited to the purchase price. At the present dividend rate of $2.60 per share this will more than cover the interest charges on unpaid installments. In this way, even though the dividend rate is not increased, the employee need make a cash outlay of only $29 per share over a period of that many months.

Should an employee be discharged or voluntarily leave the company's employ, the company retains the right (a) to return the investment with interest; (b) to deliver the number of shares paid for in full by the money already paid; or (c) to give the former employee of the company the privilege of completing payments immediately. In the event of defaulted payments, the company has the right to cancel the subscription and convert the purchaser's equity into cash at market quotation and turn the proceeds over to the purchaser. As an alternative in such instances, the company announces that it may, as a concession to the difficulties of an employee, return the cash already paid, with interest.

The trustees are C. S. Duffield, of the United Fuel Gas Company; Benjamin H. Ruskaup, of the Union Gas and Electric Company; W. W. Freeman, vice-president of the Columbia Gas and Electric Company and president of the Union Gas and Electric Company of Cincinnati; H. A. Wallace, vice-president and general manager of the Columbia Gas and Electric Company and of the United Fuel Gas Company of Charleston, W. Va., and E. Reynolds, Jr., treasurer of the Columbia Gas and Electric Company and its subsidiaries.

Filter Tank for Gas Plant

Beaver Dam, Wisc.—Plans have been prepared and work will be started in the near future on a large concrete filter tank at the gas plant. The tank will be used as a settling basin and filter through which all the waste water will pass and the impurities in the water such as oil and tar will be removed before the water enters the river.

The Wisconsin Power, Light & Heat Co., acquired the gas property last fall and has made several additions and improvements to the plant since taking it over. Among other things, an electric motor was added to operate the blower, replacing a steam engine. This change resulted in a decided improvement in the operating conditions.

American Public Utilities Surplus

Earnings of the American Public Utilities Company for the year ended June 30 showed a balance available for stocks of the company of $720,419, according to the report made public recently. The report shows that the properties of the Wisconsin-Minnesota Light and Power Co. were sold during the year and the funds used to retire $2,500,000 of collateral trust bonds.

Prizes and Awards for Eighth Suggestion Contest Announced

Prizes and awards to the amount of nearly $600 marks the termination of the eighth Suggestion Contest period, it has been announced by the members of the Suggestion Committee of Philadelphia Company, Pittsburgh, Pa. The period has marked the greatest response since the plan was adopted two years ago and more than 800 suggestions were considered. Seven major prizes and 78 awards were made to those whose ideas had not been previously considered and which were valuable enough to adopt.

During the two years in which suggestions have been considered, 3948 ideas have been submitted, of which 499 were awarded prizes. Of these 44 were considered of such value that the authors were awarded major prizes valued from $10 to $75 each. Awards of $5 each were made in 455 cases, the total amount of money awarded for all suggestions being $3475.

It is is inspiring thought to know that among the employes of the various utility companies appear so many wide awake men and women who are constantly on the alert to note conditions in working environment which can be bettered.

The personnel of the new committee on suggestions is as follows:

J. L. Burns, Office Assistant to President, Chairman.

J. M. Graves, General Manager, Duquesne Light Company.

F. F. Schauer, Assistant to General Manager, Equitable Gas Co.

D. J. Hennesy, Assistant to Controller.

J. W. Murray, Assistant Treasurer.

A. W. Stevenson, Real Estate Agent.

W. A. Coyle, Legal Department.

The prize winning suggestion with an award of $75 in this last contest is credited to William B. Herbst, of the Engineering Department, who outlined a remedy for hanging angles in manholes. Mr. Herbst's suggestion is that an iron sleeve, triangular in shape, and just large enough to accommodate two angles, be permanently cemented into the manhole wall and the angles be slid in and out with little or no trouble whatever. The close fit to which this sleeve can be made will effectively prevent sagging. The manifest advantage of the use of sleeves of this nature is the great saving of time and labor when removing shelves and supports.

Second prize, carrying an award of $40, is given to George H. Fromtling, who suggested that a letter of appreciation of pleasant relations accompany the final bill for service at a location when the customer moves.

Third prize, $30, is awarded Daniel Sullivan, whose suggestion is one of safety and is that red lights be placed on the open end of the private right of way on the bridge connecting Duquesne Junction and Swissvale.

Lawrence J. Monohan, of the Elrama Gas Plant, suggests a method of lights to indicate the height of the holder and keep the exhauster operator posted so that the speed of the compressors or exhausters may be varied, for which he was awarded fourth prize of $25. In addition several $10 prizes and seventy-two $5 prizes were awarded.

Improving Gas Distribution

Kingston, N. Y.—The Kingston Gas & Electric Company made its first move in connection with the improvement of its gas distribution system.

In order to improve the gas pressure conditions in the central district, the company is installing a district governor on the high pressure main at the junction of East O'Reilly Street and Hasbrouck Avenue. At present the high pressure main which runs from the Kingston Gas Works to Field Court is tapped at only two points, Meadow Street and St. James Court. At these two points district governors are located, the Meadow Street governor supplying the district below the West Shore Railroad crossing and the St. James Court governor supplying the section above the West Shore Railroad crossing.

Gas Holder Completed.

The erection of gas holder at Scott Field, Illinois, has been completed and accepted. The contract for this was awarded to Fred W. Freese and Company. A contract amounting to $70,000 has also been granted to this concern for a city incinerator or garbage disposal plant at Knoxville, Tenn.

Gas Service Withstands Floods

One utility survived the recent raging waters of swollen streams in Kansas and Oklahoma. Gas service every hour during the flood disaster in Winfield and other towns was the record of distribution plants at these points, owned and operated by the Empire Companies with headquarters in Bartlesville, Oklahoma.

All other utilities, including electric plants, city water systems, street railways, and railroads were forced to suspend within three hours after the flood waters were upon these cities.

Managers Frank Haerle of Arkansas City, J. J. Schubert of Winfield and E. S. Miller of the Western Distributing Company, organized their operating forces in military fashion, and all strategic profits were watched and every advantage taken which would guarantee uninterrupted service to the panic stricken and distressed citizens, all of whom were dependent upon gas for fuel.

The main line from the Dilworth, Oklahoma, fields, which supplies these two cities and many others in central-eastern Kansas, crosses the treacherous, shifting bed of the Arkansas river at Arkansas City, Kansas. A special study was made of this crossing and the line laid with extraordinary safeguards.

Last fall V. C. Jarboe, superintendent of transmission lines, with W. P. Benedict of the Winfield division, carefully inspected and further strengthened the lines at each side of this river. Forethought in operating a great gas system is fully appreciated when occasions similar to this arise. All credit for maintenance of an almost perfect gas service is due to the splendid generalship of the operating heads in these cities and towns affected by the flood disaster.

The Empire gas system was planned and laid out with unusual forethought, looking to continuous service for its hundreds of thousands of customers. Crossings of every nature are inspected and safeguarded regularly. All of the cities are divided into districts which permit closing of any section which might become untenantable and endanger the entire city's gas system.

New Office Building of Pacific Gas and Electric Completed in Oakland

The Pacific Gas & Electric Company has recently completed an eight-story office building in Oakland, Cal. It is strictly fireproof, and a high class office building with granite base and walls of flame colored brick and terra cotta. The first story windows and doors are of copper. At night a most unique and original lighting effect is seen.

On the ground floor is located the main office, a lofty and dignified room with marble floor and wainscoting, imitation Caen stone walls and mahogany counters. It is entered by doorways from both streets. In the center is located a working space surrounded by counters where orders for service may be placed, bills paid, etc. In the rear are located the desks of the executive officials and their clerks and the manager's office, as well as a large vault connected by a stairway with a similar vault in the basement. From this main office two marble stairways and two elevators lead to the basement, the front portion of which is given up to a display room for gas and electrical appliances. The rear portion of the basement is given up to service rooms and is reached by an electric sidewalk elevator. There are two high speed alternatng current electric passenger elevators, and two stairways to the top of the building.

On the upper floors are located, successively from the second to the seventh, the bookkeeping department, collection department, accounting department, electrical department, gas department and load dispatcher's department. These departments are connected with the main office on first floor by means of a pneumatic tube system, intercommunicating telephones and an electric mail elevator. Each department is provided with a large fireproof vault and with speially arranged offices. The mail elevator is a new and unique feature. It has a small car about six inches by twelve inches in size for the transportation and distribution of mail matter from the main office to the various departments. It is electrically controlled so that mail can be sent to any desired floor by touching a button. When the elevator stops a bell rings until the mail is taken out.

Special provision has been made for the comfort of employees. On all floors there are coat rooms, lockers and toilets. On the eighth floor there is a comfortable lunch room with a well equipped kitchen served by an electric dumb waiter from the basement. On this floor, also there is a large Assembly and Social Hall of which the lunch room forms a part. The hall is provided with a thoroughly modern stage and a motion picture machine booth. There is also a large library on this floor.

On the roof, overlooking the city and surrounding country, is a covered and enclosed sun porch for employees, and a roof garden with cement pavement. This roof garden is not obstructed by the usual unsightly elevator pent house and tanks. The elevator machines are kept below the roof line and the tanks are also depressed, leaving the roof entirely clear of obstructions.

Proper provision is made for the growth of all departments so that this building will take care of the company's needs for some years to come.

Personal

The Surface Combustion Co. furnace engineers and manufacturers have made the following assignments in personnel.

Mr. F J. Winder becomes the manager of the Pittsburgh District with offices at 927 Union Arcade Building, Pittsburgh, Pa. Mr. A. J. Huston will have charge of the Buffalo District with headquarters at 45 Andrews Building, Buffalo, N. Y.

Geo. H. Wilmarth Made Manager of Wisconsin-Minnesota L. & P. Co.

R. F. Pack, vice president and general manager of the Northern States Power Company, has announced the apointment of George H. Wilmarth as manager of the Wisconsin-Minnesota Light and Power Company, with headquarters at Eau Claire, Wisconsin. The Wisconsin-Minnesota Light and Power Company is operated as part of the Northern States Power system.

George H. Wilmarth has been connected with the public utility industry since 1899, when he received his degree in electrical engineering at the University of Illinois. His broad and varied experience since that time, ranging from construction activities in the telephone and traction fields to the management of electric and gas companies, has fitted him for the larger responsibilities he now assumes.

Mr. Wilmarth's affiliation with the Byllesby organization began as general superintendent of the Red River Power Company at Grand Forks, North Dakota, now part of the Northern States Power system. He served in that capacity from 1910 to 1912, and then was transferred to Sapulpa, Oklahoma, as manager. In 1918 he became manager of the Muskogee division of Oklahoma Gas and Electric Company, which position he resigned to become manager of the Wisconsin-Minnesota Light and Power Company.

East Ohio Gas to Dig State's Deepest Well

Cleveland, O.—Work of drilling what is to be the deepest gas well in Ohio has been started by the East Ohio Gas Co. in Guernsey county, near the Belmont county line.

In an attempt to develop a new field the company proposes to go down to the Clinton sand which geologists estimate will be struck at a depth of about 5,300 feet in that territory.

This is 1,000 feet deeper than other Ohio wells.

New Company Incorporated

Albany, N. Y.—Certificate of incorporation has been filed in the office of the Secretary of State at Albany by the Little Giant Gas Consumer, Inc., of Binghamton, N. Y. The object of the corporation is to deal in coal gas consumers, etc. The capital stock is $100,000 and the corporation begins business with $10,000. Preston Kennedy, R. E. Gardiner and Anna Perry Gardiner, all of Binghamton, are directors. The attorney for the corporation is Robert E. Gardiner, 320 Security Mutual Building, Binghamton, N. Y.

Newspaper Boosts Gas Company

The following item appeared in the "Daily Pioneer" of Bridgeton, N. J., under a heading "Day by Day," a personal chat about men, matters and things in and about Bridgeton, N. J.:

Bridgeton is a well lighted town. That means not only are the streets of Bridgeton well lighted, but that the homes, the business houses, the public buildings, are all splendidly illuminated.

With the general use of electricity for lighting, it seemed that the future would provide all electric lighting. Indeed it has been remarkable how the electric current has been utilized for illuminant. In the last five years there has been a tremendous increase in electric lighting, and few if any homes have been erected within the last five years but have not been wired almost for exclusive electric lighting.

But it is a fact nevertheless that there has never been a time in the history of the gas business when there was so much gas used for illumination as right now, and each year the gas consumption for lighting purposes is increased to a very large extent.

In Bridgeton there are more homes lighted by gas than probably any other city of its size in the country. This is due largely to the fact that the Bridgeton Gas Light Company gives a service which is unequalled anywhere. When the electric light became a great commercial factor, it was not the policy of the Bridgeton Gas Light Company to admit that its usefulness in furnishing lighting was at an end. The management at once met the greatest competition it had known, and despite the advantages which electricity has in many respects the lighting business of the gas company has extended and increased all of the time.

The gas company took advantage of the great advance made in lighting equipment and fixtures. It saved much of its business in the business houses, indeed has increased it, with the use of the arc lamps which are giving satisfaction to the merchants. The splendid development of gas fixtures and equipment for the home has added to the demand for gas for lighting and when people realize that they always have the advantages of the service of the company, they get abundant satisfaction with the lighting which is furnished.

It is a long step from the days of the kerosene oil lamp to the present brilliantly illuminated homes. Today the rooms in dwellings may be made as light as day and the equipment furnished makes it possible to have fixtures wherever they want them, and the designs are very attractive. Then there is always in gas a constant, never interrupted service. Not once since the gas company began its business away back before Bridgeton was an incorporated city there has not been a minute when the gas was not flowing to your service.

The officials of the gas company are not only satisfied with conditions, but they are optimistic that gas lighting will be even more generally used than it is at the present time. There is constant development of improved equipment and each year there is added something which has an appeal and gives greater satisfaction to the consumer.

And while there is so much electricity used in lighting, while there is a constant increase in the use of gas for illuminating purposes. it is hard to believe that there are more candles made and sold at this time than in all the history of the country.

Employes of Spokane Gas & Fuel Co. Honor Harry Warner at Banquet

It was a lively party of employes from all departments of the Spokane Gas & Fuel Company who gathered at the Silver Grill in Spokane for the farewell dinner in honor of Harry Warner, the general manager, who is leaving for Salina, Kansas. Eighty people from the office, salesroom, plant and shops were present. M. W. Thernes, secretary of the company, was toastmaster.

Responses were made by W. C. Coakley, general superintendent; Charles Jolley, shop foreman; Clayton Kinney, new business department, and Miss Beulah Rice, representing the women employes. Each spoke kindly of the retiring general manager in his relations to their own department, and while they regretted his departure from Spokane, congratulated him on the promotion he has earned.

On behalf of employes of all departments, the chairman presented Mr. Warner with a fine wardrobe trunk.

Mr. Warner responded, outling his activities in the Doherty organization and telling of the opportunities there are for the young men of the organization.

J. S. Rider at His Desk Again

The many friends of J. S. Rider, Manager The Tri-City Gas Co., Gadsden, Ala., throughout the gas industry, will be glad to know that he has fully recovered from a recent operation for appendicitis and is back at his desk again in the gas company office.

Customer Ownership Sales

Sales of prefered stock on the customer ownership plan by the operated public utility companies of Standard Gas and Electric Company during July aggregated $647,-300 par value, there having been 1,163 separate transactions.

Chemical Exposition to be Held Biennially

The Chemical Exposition will not be held in 1924, according to a recent vote taken among the exhibitors by the management. The results of a mail vote on the question of whether the Exposition should be held every year or every other year ended on July 28th and showed about 60 per cent of exhibitors voting were in favor of a biennial exposition. The vote by mail was taken by the management as a result of the meeting of exhibitors held at the Chemists' Club, New York, on July 28th, at which time a vote on the question by those present resulted in a tie. It was then decided that all exhibitors should vote again by mail and that this should be considered the final decision in the matter. Following the 1923 Chemical Exposition, which will be held during the week of September 17th to 22nd at the Grand Central Palace, New York, the next Exposition will be held in 1925 by the same management.

Gas Company Resorts to Court

The Chattanooga Gas Company, Chattanooga, Tenn., through its attorney, L. P. Miles, recently sought relief in Federal Court from the order of the State Railroad and Public Utilities Commission, issued on July 11, which institutes reduced rates in Chattanooga. The gas company claims these rates to be confiscatory.

The resort to the Federal Court follows the refusal of officials of the city of Chattanooga to agree to the institution of a service cost basis for temporary charges.

The gas company alleges that if the commission's rates are correct, they will net the company only 4 per cent, and if incorrect will net only 2 per cent.

A recent ruling of the Supreme Court of the United States holds that anything under 7¼ per cent return is confiscatory, after Federal income tax has been paid.

The petition asks the court to enjoin the order of the commission and under the law Judge John J. Gore will call in two additional judges to sit with him on the case.

Muskegon's Gas Rates Reduced

Lansing, Mich.—An order issued by the State Public Utilities Commission reduces gas rates in the territory served by the Muskegon Traction and Lighting Company approximately 20 cents a thousand cubic feet.

The schedule authorized by the commission provides for a charge of $1 for the first 500 feet or less, $1.65 per thousand for the next 4,500 feet, $1.60 for the next 95,000; $1.50 for the next 100,000; $1.45 for the next 300,000; $1.40 for the next 500,000, $1.35 for the next 500,000 and $1.10 for all over 1,500,000.

The commission determined that the actual cost of gas production in the plant is $1.47 per thousand and the schedule allowed provides for an average return of about $1.50 per thousand. It is estimated that this will return a revenue of about 7 per cent on a $700,000 valuation.

The commission found that the company had a deficit of $56,834 in 1920, a deficit of $6,861 in 1921 and a profit of $44,198 in 1922.

Sunnyvale, Calif., to Have Gas Service

John D. Kuster, San Jose district manager for the Pacific Gas and Electric Company, has informed the Sunnyvale Chamber of Commerce that he has just received official instruction from the head office in San Francisco to the effect that gas service will be installed in Sunnyvale, and that the work would be commenced just as soon as the franchise is granted and material placed on the ground. "Tell the people of Sunnyvale that they will have gas before Christmas," said Mr. Kuster.

Gas Company's Earnings Pass $64,000 During June

Atlanta, Ga.—The net earnings of the gas department of the Georgia Railway and Power Company for the month of June were $64,281.78, according to a statement filed with the Georgia Public Service Commission.

The total revenue of the company from the sale of gas and other sources was $191,276.99, and the total expenses were $126,995.

The average rate per thousand feet paid by consumers for gas was $1.5427, and the production cost per thousand was $1.0381, showing a net return per thousand feet of .5254 cents.

Will Build New Gas Plant

Fort Myers, Fla.—The City Commission has purchased a new site for municipal public utilities plants.

The property comprises fifteen lots on the south side of Anderson Avenue from the Towles Estate, the consideration being $1,000 in cash and the trading of the triangular piece of property on which the city's incinerator is now located.

Mayor-Commissioner Vernon G. Widerquist at the luncheon-meeting of the Kiwanis Club, in making the announcement of the consummation of the deal acquiring the new site for the city refuse disposing plant and the proposed new $125,000 gas plant, declared that the valuable property is of sufficient size to take care of new city water, electric light and power and gas plants and provide storage space to meet the future needs of a city of 300,000.

Savannah Gas Co. Issues $600,000 First Mortgage Bonds

Savannah, Ga.—The Citizens and Southern Company has bought the entire issue of $600,000 first mortgage 6 percent bonds of the Savannah Gas Company, dated September 1st. The issue will be offered for sale in the various offices of the Citizens and Southern Company.

The Savannah Gas Company is owned by the United Gas Improvement Company of Philadelphia. A million and a half dollars of 5 percent bonds, issued by the company, and due September 1st, will be paid on that date. This issue is secured by all the Savannah property. The new issue of $600,000 6 percent bonds will be secured by the same property. Being a much smaller issue and bearing a higher rate of interest it is regarded as a much better investment.

The property of the gas company which will be security for the bonds has been appraised at $2,500,000. During the last eight years the net earnings of the company applicable to interest charges have averaged 3.35 times the requirements of this issue, and for the last five years the average has been 3.72 times the requirements. The capitalization of the company September 1st will be as follows: Firt mortgage 6 per cent bonds, this issue, $600,000, preferred stock, $450,000; common capital stock, $1,400,000.

Interest on the bonds will be payable September 1st and March 1st at the National City Bank, New York and Philadelphia, and at the offices of the Citizens and Southern Bank, trustee, in Savannah, Augusta, Macon and Atlanta.

Additional Natural Gas Supply for Buffalo, N. Y.

Buffalo is now receiving an increase of 2,000,000 cu. ft. per day in its supply of natural gas. The new supply of gas comes from the 6,000,000 foot well recently struck by the Skinner Hollow Gas Company of Forestville, N. Y.

The new well is located within 1,500 feet of the lines of the Iroquois Natural Gas Company of Buffalo. It is 3,200 ft. deep, striking gas in white Medina sand. Drilling was started March 13th, and two other wells will be sunk immediately in the same area.